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Amendments to the Claims

The following listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A method for analysing the amount of free gas within a pharmaceutical sample, **the method** comprising the steps of:

[[-]] **a)** providing a sample ~~(14)~~ before an irradiating source ~~(2, 10, 12),~~;

[[-]] **b)** irradiating the sample with at least one beam of electromagnetic radiation**[[,]]**;

[[-]] **c)** detecting radiation emitted from the sample;~~and~~

[[-]] **d)** generating signals corresponding to the amount of free gas in the sample**[[,]]**; and,

[[-]] **e)** correlating the generated signals to at least one solid state parameter of the sample.

2. (Currently Amended) **The method** ~~Method~~ according to claim 1, wherein the emitted radiation comprises transmitted radiation from the sample.

3. (Currently Amended) **The method** ~~Method~~ according to claim 1, wherein the emitted radiation comprises reflected radiation from the sample.

4. (Currently Amended) **The method** ~~Method~~ according to claim 1, wherein the emitted radiation comprises transmitted radiation **and** ~~as well as~~ reflected radiation from the sample.

5. (Currently Amended) **The method** ~~Method according to any of claims 1-4~~ **according to claim 1,** wherein the free gas is oxygen.

6. (Currently Amended) **The method** ~~Method according to any of claims 1-4~~ **according to claim 1,** wherein the free gas is carbon dioxide.

7. (Currently Amended) **The method** ~~Method according to any of claims 1-4~~ **according to claim 1,** wherein the free gas is water vapour.

8. (Currently Amended) **The method** ~~Method according to any of claims 1-7~~ **according to claim 1, further** comprising the ~~further~~ step of detecting radiation emitted as a function of time ~~wherein the solid state parameter represents the diffusitivity of a gas in a sample~~.

9. (Currently Amended) **The method** ~~Method according to any of claims 1-7~~ **according to claim 1,** wherein the solid state parameter represents the hardness of the sample.

10. (Currently Amended) **The method** ~~Method according to any of claims 1-7~~ **according to claim 1,** wherein the solid state parameter represents the **disintegrability** ~~disintegration ability~~ of the sample.

11. (Currently Amended) **The method** ~~Method according to any of claims 1-7~~ **according to claim 1,** wherein the solid state parameter represents the **dissolvability** ~~dissolution ability~~ of the sample.

12. (Currently Amended) **The method** ~~**Method according to any of claims 1-7**~~ **according to claim 1,** wherein the solid state parameter represents the flowability of the sample.

13. (Currently Amended) **The method** ~~**Method according to any of claims 1-7**~~ **according to claim 1,** wherein the solid state parameter represents the aggregation properties of the sample.

14. (Currently Amended) **The method** ~~**Method according to any of claims 1-7**~~ **according to claim 1,** wherein the solid state parameter represents the density of the sample.

15. (Currently Amended) **The method** ~~**Method according to any of claims 1-14**~~ **according to claim 1,** wherein the pharmaceutical sample is a solid sample~~**, in particular a tablet, a granule, a capsule, a bulk powder or an equivalent pharmaceutical dose**~~.

16. (Currently Amended) **The method** ~~**Method**~~ according to claim 15**,** wherein the pharmaceutical sample is positioned inside a blister of a blister pack.

17. (Currently Amended) **The method** ~~**Method according to any of claims 1-16**~~ **according to claim 1,** wherein the radiation irradiating the sample comprises infrared (IR) radiation.

18. (Currently Amended) **The method** ~~**Method**~~ according to claim 17**,** wherein the IR radiation is ~~**in the**~~ near infrared (NIR) radiation.

19. (Currently Amended) **The method** ~~**Method according to any of claims 1-16**~~ **according to claim 1,** wherein the radiation has a **wavelength** ~~**frequency**~~ in the range ~~**corresponding to wavelengths**~~ of from about 700 to about 2100 nm~~**, particularly from 700 to 1300 nm**~~.

20. (Currently Amended) **The method** ~~**Method according to any of claims 1-16**~~ **according to claim 1,** wherein the radiation irradiating the sample comprises visible light.

21. (Currently Amended) **The method** ~~**Method according to any of claims 1-16**~~ **according to claim 1,** wherein the radiation irradiating the sample comprises UV radiation.

22. (Currently Amended) **The method** ~~**Method according to any of claims 1-21**~~ **according to claim 1,** wherein the irradiating source **comprises a** ~~**is represented by at least one**~~ diode laser ~~**(2)**~~.

23. (Currently Amended) **The method** ~~**Method according to claim any of claims 1-21**~~ **according to claim 1,** wherein the **emitted** radiation is detected by a photo multiplier ~~**(16)**~~.

24. (Currently Amended) **The method** ~~**Method according to any of claims 1-21**~~ **according to claim 1,** wherein the **emitted** radiation is detected by a photo diode ~~**(16)**~~.

25. (Currently Amended) **The method** ~~**Method according to any of claims 1-24**~~ **according to claim 1,** wherein the analysis is conducted in a manufacturing area at-line.

26. (Currently Amended) **The method** ~~Method according to any of claims 1-24~~ **according to claim 1,** wherein the analysis is conducted in a manufacturing area on-line.

27. (Currently Amended) **The method** ~~Method according to any of claims 1-24~~ **according to claim 1,** wherein the analysis is conducted in-line in a manufacturing process vessel.

28. (Currently Amended) **The method** ~~Method~~ according to any **one of claims 1-27 and 29-32,** ~~of the preceding claims~~ wherein the amount of free gas analysed ~~for~~ **within the** ~~a~~ pharmaceutical sample is used as feedback control data in a manufacturing process in order to obtain predetermined physico-mechanical characteristics of the **pharmaceutical sample** ~~manufactured product~~.

29. (New) The method according to claim 1, wherein the solid state parameter represents the diffusitivity of a gas in a sample.

30. (New) The method according to claim 15, wherein the solid sample is selected from the group consisting of a tablet, a granule, a capsule, a bulk powder, a pharmaceutical dose, and a pharmaceutical dosage form.

31. (New) The method according to claim 19, wherein the radiation has a wavelength in the range of from about 700 to about 1300 nm.

32. (New) The method according to claim 1, wherein the generated signals are correlated to more than one solid state parameter of the sample.